



Preapproved Routine Impact Assessment Roads and Related Infrastructure

Parks Canada National Office
IAA 2019

Preapproved Routine Impact Assessments (PRIA) are pre-determined environmental management and mitigation measures for a defined class of routine, repetitive projects or activities with well understood and predictable effects. Approved PRIAs are an acceptable Impact Assessment pathway as they fulfill Parks Canada's obligations under the *Impact Assessment Act* (IAA) 2019 as a manager of federal lands.

This PRIA applies to the repair and modification of roads or related infrastructure. Routine maintenance with no beginning and end, such as ongoing vegetation maintenance or snow removal is not included in this PRIA. Environmental concerns from ongoing maintenance can be addressed in a Field Unit Standard Operating Procedure.

Incorporating conservation gains and environmental design in the project is encouraged for all Parks Canada projects. This and other proactive planning and design mitigations should be discussed at an early stage. Examples are:

- Impacts of design on wildlife mortality and connectivity (e.g., need for wildlife crossing structures or other mechanisms to reduce mortality at known hotspots).
- Conservation gains as a way to maintain habitat permeability.
- Greening Operations such as designing with materials that have a lower carbon footprint.
- Need for a Reclamation Plan that clearly identifies the goals and objectives, timelines, and budget for the project.

This PRIA shall not be used as is without input from the Parks Canada **Impact Assessment (IA) Practitioner**. The IA Practitioner will first review the PRIA to determine what mitigations apply and what additional information or mitigations are required for the project. This can be done by completing the [site-specific tables](#) and adding mitigations to module 1: [Site-specific mitigations](#). Internal specialists (e.g., vegetation, fish, species at risk, reclamation) should be consulted as required. Modules or mitigations that do not apply to the project can only be deleted by the PC IA Practitioner.

Those responsible for project delivery (i.e., external proponents, Field Unit staff, Highway Engineering Services or their contractors) are responsible for implementing the PRIA mitigations and other permit conditions.

Definitions:

Cultural Resource is a human work, an object, or a place that is determined, on the basis of its heritage value, to be directly associated with an important aspect or aspects of human history and culture. The heritage value of a cultural resource is embodied in tangible and/or intangible character-defining elements.

Designated Parks Canada staff refers to a Parks Canada employee on the site that has decision making authority for the project (i.e., not a consultant or contractor). This person is responsible for contacting any Parks Canada specialists as required during the construction period, including the IA Practitioner.

Drainage structures include culverts, ditches, manholes, catch basins, curbs and drains.

Fish habitat means water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas (subsection 2(1) of the Fisheries Act).

High water mark is the usual or average level to which a body of water rises at its highest point and remains for a sufficient time so as to leave a mark on the land (Fisheries and Oceans, 2015). Upper Controlled Water Elevation is used as the definition of high water mark in managed waterways.

Protected heritage place refers to federal land, submerged land and water, as well as buildings and structures administered by Parks Canada, including National Historic Sites of Canada and historic canals administered by Parks Canada, National Parks of Canada and National Park Reserves of Canada, National Marine Conservation Areas of Canada (including National Marine Conservation Area Reserves of Canada, Saguenay-St. Lawrence Marine Park and Fathom Five Marine Park) and any national urban parks or other places of heritage value identified in the future.

Qualified environmental professional is someone who has qualifications, certification and/or direct experience in the appropriate discipline of practice (e.g., designated professional status, knowledge and direct field experience in a specified skill or area of expertise relevant to the project).

Related infrastructure includes but is not limited to existing parking lots, existing gravel pits, pull-off and traffic ponding areas, bridges, retaining walls, avalanche control structures, signage, guardrails, concrete barrier (aka “Jersey barrier”), drainage structures or service lines. Sidewalks, boardwalks or their associate railings are not considered as roads and related infrastructure (refer to Frontcountry Areas PRIA).

Service lines include underground and aboveground service lines for water, sanitary waste, storm water, natural gas, power and communication. Utilities (water, sanitary sewer, storm water, natural gas) that are provided in pipes are usually located under or adjacent to roadways.

Subsoil is the layer of soil directly below the topsoil. It contains mainly mineral soils, with very little organic matter. It includes the ‘B’ horizon and sometimes ‘C’ horizon material. In this document, salvaging of subsoil refers to salvaging all or enough of the B horizon to help promote plant growth after reclamation.

Topsoil is the surface layer of soil, including ‘O’ horizon and ‘A’ horizon as defined by the Canadian System of Soil Classification. It contains the organic matter that provides an adequate medium for the germination and growth of plants. It contains the soil seed bank and the majority of soil microorganisms and is used in soil salvage.

Water body includes a lake, a canal, a reservoir, an ocean, a river and its tributaries and a wetland, up to the annual high water mark, but does not include sewage or waste treatment lagoon, a mine tailings pond, an artificial irrigation pond, a dugout or a ditch that does not contain fish habitat as defined in subsection 2(1) of the [Fisheries Act](#).

Scope of Application

This PRIA includes repair and modification of existing roads, parkways and related infrastructure.

Activities included in this PRIA are:

- General Activities that most projects have in common, such as:
 - The management of wildlife, invasive alien species, cultural resources, visitor experience, dust control and noise, work in or near water, erosion and sediment control, establishment and operation of staging and laydown sites, fuel storage and refuelling, emergency planning, site clean-up and waste management and site reclamation activities.
- Specific activities such as:
 - Asphalt production and handling
 - Concrete handling and washout facilities

- Paving, resurfacing and grading
- Roadside vegetation removal
- Excavation, soil stripping and overburden removal
- Slope stabilization, drilling and blasting
- Demolition
- Drainage structures
- Bridge
- Water withdrawal and dewatering
- Fish, amphibian and reptile salvage

Conditions and Exceptions

This PRIA does NOT apply to the following:

Location:

- Project work in previously undisturbed areas required to build and maintain the road and associated infrastructure (e.g., expansion of a parking lot or gravel pit). Some examples of disturbance are filling, excavating, stripping, grubbing, grading, bulldozing, compaction or blasting. Disturbance may extend only a few metres or tens of metres from the shoulder, depending on site history.
- The project results in residual adverse effects to sensitive natural or cultural resources (e.g., nests, dens and roosts, fish spawning areas, cultural resources, riparian areas, wildlife corridors, rare ecotypes, or areas of management concern).

General:

- The project results in residual adverse effects on migratory birds or their nests.
 - Refer to the draft- Parks Canada Guidance on Reducing Risk to Migratory Birds and associated draft- Conservation Measures to Minimize Impacts to Migratory Birds During the Nesting Period.
- The project results in residual adverse effects on an individual, a residence or the critical habitat of a listed species listed under the *Species at Risk Act*.
 - Determine if mitigations are needed to ensure no residual adverse effects to species at risk. Such mitigations should be included in the Supplementary Mitigations section.
- The project is likely to require an approval under the *Canadian Navigable Waters Act* (s. 5(1)). Check if your project is a major works in any navigable water or works in navigable waters listed on the [Schedule](#).
 - In cases where the project proposes to construct, place, alter, rebuild, remove or decommission works (including temporary work such as a cofferdam) that are in, on, under, through or across any navigable water, there may be a requirement to apply to Transport Canada, for scheduled waterways, or go through the public resolution process, for unscheduled waters. Verify if the project is a “major works” in any navigable water or “works” in [Navigable Waters Listed on the Schedule](#).
- The project is likely to require an authorization under the *Fisheries Act* (s.35(1) or 36(3)). DFO project [review process](#) to determine whether an authorization is required:
 - In cases where impacts to fish and fish habitat cannot be avoided, a request for review must be sent to Fisheries and Oceans Canada’s Fish and Fish Habitat Protection Program Office.
- The project involves the removal of or causes damage to cultural resources of heritage value, for example, heritage buildings designated by the Federal Heritage Buildings Review Office, archaeological sites, historical and archaeological objects, or cultural landscapes.
- The project involves the removal of or causes damage to paleontological resources.
- The project adversely effects sites of significance to Indigenous peoples or current access and use of areas where hunting, fishing or gathering rights are exercised by Indigenous peoples.

Other considerations

Use of the PRIA may not be appropriate in circumstances where:

- The project may adversely effect aquatic or terrestrial wildlife habitat connectivity.
- The project results in loss of wetland function as defined by the [Federal Policy on Wetland Conservation](#) (1991). Wetland functions include the natural processes and derivation of benefits and values associated with wetland ecosystems, including economic production (e.g. peat, agricultural crops, wild rice, peatland forest products), fish and wildlife habitat, organic carbon storage, water supply and purification (groundwater recharge, flood control, maintenance of flow regimes, shoreline erosion buffering), and soil and water conservation, as well as tourism, heritage, recreational, educational, scientific and aesthetic opportunities.

Approved geographic area of application

This PRIA may be used within all Parks Canada administered protected heritage places.

Parks Canada Specialists

Impact Assessment:

If there are any questions on how to apply this PRIA, consult a member of the Impact Assessment Team.

Species at Risk:

If there is any uncertainty regarding potential adverse effects to species at risk, consult a member of the Species Conservation Team.

Environmental Management:

If there are questions on environmental management issues (e.g., treated wood, contaminated sites, hazardous materials or greening operations), consult a member of the Environmental Management Team.

Cultural Resources:

If there is any uncertainty regarding potential adverse effects to known or potential cultural resources (terrestrial and/or underwater), consult a member of the Cultural Management Team or, if applicable, the local Field Unit specialist.

Valued Components and Effects Analysis

Water Quality and Riparian/Fish Habitat

- Reduced water quality due to transportation of debris and contamination (e.g., from leaks and accidental spills) and introduction of fine sediments directly from activity in the waterbody.
- Introduction of deleterious substances from structure maintenance (e.g., sediments, oils, de-icing chemicals, painted chips, treated wood debris, cement-based products, wood preservatives, epoxies, paints or sealants).
- Localized changes to surface water hydrology.
- Disruption of flow, habitat damage (including erosion), changes to stream channel or death of fish from maintenance and repairs.

Soil/Land Resources

- Soil contamination from wastes (e.g., garbage, litter, sewage, fuel).
- Incidental increased disturbance footprint.
- Soil compaction and rutting.
- Soil erosion, loss of topsoil and exposure of subsoil.

- Change in slopes, landforms and landscape.

Air/Noise Quality

- Short-term decreased ambient air quality (e.g., dust, aggregate from paved surfaces, asphalt plant, equipment emissions).
- Increased ambient noise level.
- Temporary increased levels of CO₂ and other pollutants.
- Temporary increased localized temperatures from paving and equipment operation.

Wildlife and Vegetation

- Introduction of disease, invasive alien species (IAS), wildlife attractants, or expansion of existing IAS populations in disturbed areas.
- Wildlife sensory disturbance causing displacement/preferred habitat avoidance.
- Habitat destruction or alteration (e.g. loss of nests, dens, burrows, aquatic environments).
- Wildlife habituation/attraction to artificial food sources.
- Impeded/altered wildlife movement.
- Damage to nests/disruption of nesting animals.
- Injury or mortality from project activities.
- Damage to and removal of vegetation, disturbance of adjacent natural areas, root exposure and physiological distress.

Cultural Resources

- Adverse effects to the heritage value or character-defining elements of a cultural resource or a heritage place.
- Impacts to archaeological resources (known or potential: (terrestrial and/or underwater) from displacement, compaction or destruction, resulting in loss of heritage value.
- Impacts to cultural landscapes, buildings, archaeological sites, engineering works, objects.

Visitor Experience and Safety

- Reduced quality of visitor experience due to noise, visual impacts and presence of construction equipment.
- Reduced accessibility to portions of the site where work is taking place.
- Hazard to visitors and staff due to construction activities.

Site Specific Valued Components

(to be completed by Parks Canada IA Practitioner)

Instruction to IA Practitioner: Identify site-specific valued components that require special consideration (e.g., waterbodies, sensitive habitats, species at risk or known cultural resources) or specific concerns such as aggressive invasive alien species.

The following is a list of site-specific valued components and areas of concern for this project:

site-specific valued component

site-specific concern (e.g., invasive alien species)

Instruction to IA Practitioner: Complete this table and copy it to [site-specific mitigation](#) in module 1 given that restricted activity periods vary by species and site.

Site-specific Restricted Activity Periods			
Species	Applicable	Date of Restricted Activity Period	Notes or Supplemental Mitigations
Bird breeding and migration	<input type="checkbox"/>	[....]	
Fish spawning and migration	<input type="checkbox"/>	[....]	
Mammal maternity season or hibernation	<input type="checkbox"/>	[....]	
Reptile migrations, nesting and hatching	<input type="checkbox"/>	[....]	
Amphibian migrations, nesting and hatching	<input type="checkbox"/>	[....]	
Other	<input type="checkbox"/>	[....]	

*If useful, complete the Environmental Timing Windows Table ([Appendix](#)).

Instruction to IA Practitioner: Answer these questions to help identify missing site specific mitigations or information. If required, add all the supplemental mitigations in [site-specific mitigations](#) in module 1 and additional information in the [Appendix](#).

Check list questions to identify site specific mitigations	Check when supplemental mitigation is added to module 1	Check when information is attached in an appendix
Planning		
Is wildlife awareness training required?	<input type="checkbox"/>	<input type="checkbox"/>
Are pre-construction surveys required?	<input type="checkbox"/>	<input type="checkbox"/>

Check list questions to identify site specific mitigations	Check when supplemental mitigation is added to module 1	Check when information is attached in an appendix
Invasive alien species		
Are additional mitigations for invasive alien species required?	<input type="checkbox"/>	<input type="checkbox"/>
Are site specific invasive alien species protocols attached in the appendix?	<input type="checkbox"/>	<input type="checkbox"/>

Check list questions to identify site specific mitigations	Check when supplemental mitigation is added to module 1	Check when information is attached in an appendix
Cultural resources		
Are additional mitigations for cultural resources required?	<input type="checkbox"/>	<input type="checkbox"/>
Are cultural resource documents attached in the appendix?	<input type="checkbox"/>	<input type="checkbox"/>
Is cultural resource awareness training required?	<input type="checkbox"/>	<input type="checkbox"/>

Check list questions to identify site specific mitigations	Check when supplemental mitigation is added to module 1	Check when information is attached in an appendix
Work in or near water		
Are DFO measures to protect fish and fish habitat required? If so, attach in the appendix or add them in supplemental mitigations.	<input type="checkbox"/>	<input type="checkbox"/>
Is the Fish and Fish Habitat Protection Program letter of advice required? If so, attached in the appendix.	<input type="checkbox"/>	<input type="checkbox"/>
Are applicable DFO standards and codes of practice required? If so, attach in the appendix.	<input type="checkbox"/>	<input type="checkbox"/>
Are additional mitigations required for work in or near water (other than DFO information)? If so, add them in supplemental mitigations.	<input type="checkbox"/>	<input type="checkbox"/>
Is an Erosion and Sediment Control Plan required? If so, determine the scale and scope.	<input type="checkbox"/>	<input type="checkbox"/>
Is an in-stream work plan or specific in-water section in Environmental Protection Plan required?	<input type="checkbox"/>	<input type="checkbox"/>
Are additional site-specific mitigations required for drainage structures?	<input type="checkbox"/>	<input type="checkbox"/>
Is a site-specific dewatering plan required?	<input type="checkbox"/>	<input type="checkbox"/>
Are additional fish, amphibian or reptile salvage mitigations required?	<input type="checkbox"/>	<input type="checkbox"/>

Check list questions to identify site specific mitigations	Check when supplemental mitigation is added to module 1	Check when information is attached in an appendix
Vegetation		
Are approved Reclamation or Environmental Protection Plans required?	<input type="checkbox"/>	<input type="checkbox"/>
Do Field Unit reclamation guidelines exist? If so, attach in the appendix.	<input type="checkbox"/>	<input type="checkbox"/>
Does an approved site-specific seed mix (es) and/or planting species list exist within the Field Unit? If so, attach in the appendix.	<input type="checkbox"/>	<input type="checkbox"/>
<p>Do appropriate site-specific seed mix(es) and/or plantings need to be determined?</p> <p>If there is no approved species list within the Field Unit, consider the following conditions when selecting plant materials:</p> <ul style="list-style-type: none"> • Revegetation with native species is preferred unless otherwise directed by Parks Canada. • Use species relatively common within local native plant communities. • Source seeds from local growers to ensure local adaptation wherever possible (within the ecoregion, ecozone, province or as per Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas). • Avoid the use of cultivars unless there are no wild species available. • Consider species' viability in proposed environment and climatic conditions. • Use species that rapidly establish to effectively control erosion, where required. <p>Consider palatability of some species to wildlife and avoid growing attractants in areas of increased risk to wildlife and visitors. Avoid palatable species for roadside reclamation. For additional information see the Parks Canada Guidance on Revegetation to Reduce Wildlife Risk.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Are there revegetation goals appropriate to the ecoregion existing, or required?</p> <p>As an example, general reclamation goals for Banff National Park are:</p> <ul style="list-style-type: none"> • <20% Bare soil (>80% Native vegetative cover) • No new IAS species present (does not include species that were present pre-disturbance) • No increase in IAS present prior to disturbance (similar plant cover/m²) • >80% survival of live plantings • No erosion issues. 	<input type="checkbox"/>	<input type="checkbox"/>
Check list questions to identify site specific mitigations		
Others		
Are there noise management considerations for this project?	<input type="checkbox"/>	<input type="checkbox"/>
Are additional site-specific mitigations for larger scale manual cement mixing activities required?	<input type="checkbox"/>	<input type="checkbox"/>
Are additional site-specific mitigations needed for drilling and blasting?	<input type="checkbox"/>	<input type="checkbox"/>
Are the applicable mitigations from the Geotechnical and Environmental Investigations PRIA attached in the appendix?	<input type="checkbox"/>	<input type="checkbox"/>

Mitigation Measures

Mitigation Measures.....	9
1. General Activities	11
Site-specific mitigations	11
Wildlife.....	11
Invasive Alien Species (terrestrial and aquatic).....	11
Cultural Resources	12
Visitor Experience	12
In or Near Water Works	13
Erosion and Sediment Control.....	13
Staging and Laydown Sites.....	14
Noise Management	15
Fuel Storage and spills.....	15
Dust Management.....	15
Site Clean Up/General Waste Management.....	16
Site Reclamation.....	16
Subsoil and Topsoil Placement:.....	17
Revegetation:	17
Monitoring and Control:	18
2. Asphalt Production and Handling.....	19
Operation of Asphalt Plants.....	19
Gravel Crushing and Washing.....	19
Oiling of Truck Boxes	20
Disposal and Clean Up of Other Waste Products.....	20
3. Concrete Handling and Washout Facilities.....	21
Onsite Temporary Concrete Washout Facility	21
Concrete Washout Facilities	21
Concrete Application.....	22
Concrete Work In or Near Water	22
4. Paving, Resurfacing and Grading	23
Grading.....	23
Paving and Resurfacing	23
Pavement Marking and Barrier, Concrete Barrier and Guardrail Reinstatement	23
5. Roadside Vegetation Removal	24

General	24
Disposal of Vegetation Debris	24
6. Excavations, Soil Stripping and Overburden Removal.....	26
Excavation.....	26
Soil Salvage.....	26
Storage of Excavated Materials	26
7. Slope Stabilization, Drilling and Blasting	28
Slope Stabilization-Scaling	28
Drilling and Blasting for Slope Stabilization.....	28
8. Demolition.....	29
9. Drainage Structures	30
Drainage Structures	30
10. Bridge.....	31
Bridge Repairs	31
Bridge Cleaning	31
11. Water Withdrawal and Dewatering	32
Water Withdrawal	32
Dewatering and Rewatering	32
12. Fish, Amphibian and Reptile Salvage	33

1. General Activities

Site-specific mitigations

Parks Canada IA Practitioner:

- 1.1. Add site-specific restricted activity periods and all supplementary mitigation(s) not mentioned in subsequent modules that are required to ensure all potential impacts are mitigated:
 - a) ...
 - b) ...

Delivery

- 1.2. Apply additional mitigation measures mentioned above or attached in protocol as identified the Parks Canada IA Practitioner.

Wildlife

Planning

- 1.3. Schedule work to avoid restricted activity periods. Refer to site-specific mitigation.
- 1.4. Provide wildlife awareness training to on-site workers if required by field unit policy or site-specific advice.
- 1.5. Prior to the commencement of structural work or vegetation removal, complete any pre-work surveys that are required (e.g., invasive alien species, species at risk, migratory birds). Develop a site and species specific mitigation strategy to be implemented in the event that survey results are positive.

Delivery

- 1.6. Conduct any vegetation clearing outside applicable restricted activity periods, unless otherwise directed.
- 1.7. If unexpected nests, species at risk or other wildlife are found, cease work in the immediate area and contact designated Parks Canada staff for further direction.
- 1.8. Control materials that might attract wildlife (e.g., petroleum products, human food and garbage) as part of the waste management plan.
- 1.9. Never approach or harass wildlife (e.g., feeding, baiting, luring). If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area.
- 1.10. Immediately alert designated Parks Canada staff or emergency dispatch of any potential wildlife conflict (e.g., aggressive behaviour, persistent intrusion, etc.), encounters on or around the site or crew accommodation, distress or mortality.
- 1.11. Conduct activities during daylight hours and avoid critical foraging times (i.e., dusk and dawn) unless otherwise approved by designated Parks Canada staff.
- 1.12. Minimize the time excavations remain open. Slope the sides to no greater than 1:1 and ensure that wildlife and humans can safely exit it. Cover or fence smaller excavations when left unattended to reduce the potential for wildlife injury.

Invasive Alien Species (terrestrial and aquatic)

Planning

- 1.13. Develop an appropriate approach to mitigate the establishment and/or spread of invasive alien species (IAS) on the site. If IAS are a serious issue, more effective methods should be detailed in accordance with:
 - o an approved integrated pest management plan; and
 - o guidance from Parks Canada specific protocols (e.g., Whirling disease protocol).

Delivery

- 1.14. Wash all construction equipment from outside the Parks Canada protected heritage place prior to arrival to minimize risk of introducing IAS, noxious weeds and soils from off-site. Proof that equipment was washed outside the protected heritage place may be requested before equipment is permitted into the protected heritage place.
- 1.15. Control IAS in parking or staging areas as needed to reduce the spread of invasive plants or seeds.
- 1.16. Work in uninfested sites before moving to infested sites.

- 1.17. Ensure machinery already in the protected heritage place is in a clean condition and maintained free of IAS before moving to new sites, within or beyond the protected heritage place.
- 1.18. Use caution during loading of trucks and transport of any IAS and plant materials to minimize loss of materials (e.g., cover materials during transport).
- 1.19. Avoid mowing invasive plants after seed set if it is likely to spread seeds of non-native vegetation.
- 1.20. Soil, gravel, erosion and sediment control products or other applicable materials shall not be imported from outside the protected heritage place without approval from the designated Parks Canada staff.
- 1.21. If organic material cannot be used in the construction site, it may be used in other parts of the protected heritage place with approval by the designated Parks Canada staff.
- 1.22. Minimize ground disturbance, vegetation removal and bare soil exposure (e.g., cover stockpiled material with tarps, plant seeds or plants, cover with natural mulch/ground coverings).
- 1.23. Stabilize and revegetate disturbed areas as soon as possible. If there is insufficient time remaining in the growing season, stabilize the site to prevent erosion and vegetate the following spring.
- 1.24. Before and after the use of equipment in waterbodies, clean, drain and dry it on land, to prevent the introduction or spread of aquatic invasive/non-indigenous species.
- 1.25. If aquatic invasive species are found during dewatering activities, note their presence and abundance and contact the designated Parks Canada staff to ensure compliance with the [Aquatic Invasive Species Regulations](#).

Cultural Resources

Planning

- 1.26. Work with a Cultural Resource Management Advisor and specialists (e.g., archaeologists, historians, and built heritage advisors) to assess the impact of the work/project to cultural resources and on cultural landscapes or character-defining views and identify necessary mitigation measures.
 - An Archaeological Overview Assessment (AOA) may be required to determine the archaeological potential of the work area. Based on the results from the AOA, an Archaeological Impact Assessment may be required.
 - Cultural Resource Identification may be necessary for resources that have the potential to be cultural resources but have not been evaluated yet.
- 1.27. Work with a Parks Canada archaeologist to compare excavation plans to local archaeological resource inventories if available.

Delivery

- 1.28. Apply additional mitigation measures as identified by a Parks Canada archaeologist and/or cultural resource management advisor for the immediate area of work.
- 1.29. Provide on-site workers with appropriate cultural resource awareness training if required.
- 1.30. Avoid cultural resources (including archaeological sites) unless authorized by designated Parks Canada staff.
- 1.31. If cultural resources (i.e., structural remains and/or artifact concentrations) are encountered, cease work in the immediate area, secure the site and contact the designated Parks Canada staff for further direction.

Visitor Experience

Planning

- 1.32. Ensure traffic accommodation plans are consistent with field unit standards, where they exist.
- 1.33. Consider minor additions to project scope to achieve benefits for visitor experience and safety associated with the road (e.g., including pullouts when paving the road).

Delivery

- 1.34. Close and mark the work site and safety hazards with appropriate signage while active construction, repair or maintenance is underway; consider temporary detours or reroutes as appropriate.
- 1.35. If closing the area is not possible, maintain a safe working distance between work activities and visitors. If traffic control is required, use flaggers or other standardized traffic management approaches to direct traffic through the construction/hazard area.

- 1.36. Keep visitor access trails and roads outside the construction area free of construction materials, waste, machinery and equipment.

In or Near Water Works

Planning

- 1.37. Determine if [DFO measures to protect fish and fish habitat](#), a DFO Fish and Fish Habitat Protection Program letter of advice, or other water-related mitigations are needed. If so, add them either as [supplemental mitigations](#), or as an [appendix](#) to the PRIA.
- 1.38. To protect aquatic habitat, a 30 m buffer zone is generally required from a waterbody, in which no activities can occur (e.g., refueling; storage of hazardous products; long-term stockpiling of soil, aggregate or asphalt; establishment of concrete washout facilities; removal of vegetation). However, the appropriate buffer zone will be determined based on site-specific conditions by qualified Parks Canada staff or upon the advice of DFO. Where appropriate, the buffer should also apply to storm drain inlets and outlets.
- 1.39. Plan in-water work to respect site-specific restricted activity periods to protect fish, amphibians or reptiles, including their eggs, juveniles, spawning or migrating adults and/or the organisms upon which they feed or as directed by the designated Parks Canada staff.
- 1.40. When appropriate, an in-stream work plan, or a specific section for work in and around water in an Environmental Protection Plan can be developed by a qualified professional (see reference) and is subject to approval by the IA Practitioner.

Delivery

- 1.41. Work shall comply with [Fisheries Act](#) and, if provided, mitigations in the letter of advice from the DFO Fish and Fish Habitat Protection Program attached in [Appendix](#).
- 1.42. Implement erosion and sediment control measures to protect waterbodies, wetlands and riparian environments.

Erosion and Sediment Control

Planning

- 1.43. A site specific Erosion and Sediment Control Plan (ESCP) must be approved in advance of starting work in the vicinity of waterbodies, wetlands or riparian environments. It must cover all construction and reclamation periods. Parks Canada IA practitioner has to determine the project risk and sensitivity of the environment and provide ESCP scale and scope, including whether the ESCP may be included within a general Environmental Protection Plan.
- 1.44. The ESCP must be developed by a qualified environmental professional and is subject to approval by the PC IA Practitioner.

Note:

It is likely that the final details of the plan will be provided later in the process or be modified as each work site is encountered depending on timing of work, site condition, and equipment used. However, typical requirements should be stated early.

Potential considerations are:

- Project design and spatial concept of environmental sensitivities (e.g. waterbodies, riparian, wetlands, steep slopes);
- Erosion prevention (avoidance) procedures (e.g., project schedule, minimization of work area, site management, ground cover measures);
- Sediment control (minimization) measures (e.g., sediment fences, check dams, sediment traps) including specifications and typical drawings of sediment control structures;
- Detailed plans for in-water works including site isolation measures and project timelines;
- Water management plans including site control, equipment necessary and proposed dewatering locations;
- Location of erosion and sediment control measures;
- Monitoring of prevention and control measures and corrective actions (e.g., repairs);

- Removal of non-biodegradable materials once site is stabilized.

Delivery

- 1.45. Provide a briefing about the ESCP for all crew members on site and ensure they are aware of the mitigations.
- 1.46. Plan project activities to minimize soil handling and limit equipment movement over exposed soils and steep or unstable slopes prone to erosion.
- 1.47. If sediment ponds are required, ensure runoff that may reach streams meets [CCME turbidity standards](#).
- 1.48. Avoid activities that contribute to soil compaction and use practices that roughen and decompact soils to promote infiltration.
- 1.49. Use erosion and sediment control products, including backing, that are made of 100% biodegradable materials (e.g., jute, sisal or coir fiber) when possible.
- 1.50. Erosion and sediment control products should be selected to reduce potential for wildlife entanglement/attraction and prevent introduction of invasive alien species.
- 1.51. Avoid straw-based erosion control unless authorized by designated Parks Canada staff. The use of hay is not permitted due to risk of introducing invasive species.
- 1.52. All products must be approved by designated Parks Canada staff and installed prior to commencement of work.
- 1.53. In the event of erosion and sediment control measure malfunction or of deleterious substance, including sediment, run off (current or impending), work shall stop until measures are adjusted to address the problem.
- 1.54. Minimize the length of time soils are exposed and complete work in one area before commencing work in another area.
- 1.55. If vegetation clearing is scheduled early due to restricted activity periods, maintain soil stability by delaying grubbing until just prior to construction activities.
- 1.56. Store excavated material and debris in a stable area above the high water mark or active floodplain and, where possible, 30 m from drainage features and/or the top of steep slopes.
- 1.57. Protect excavated material from entering a waterbody (e.g., cover with erosion blankets or tarps, seed, or plant with native vegetation).
- 1.58. Maintain effective sediment and erosion control measures until complete revegetation of disturbed areas is achieved unless directed otherwise by designated Parks Canada staff.

Staging and Laydown Sites

Planning

- 1.59. Identify key contacts and their respective roles and responsibilities prior to work starting, and communicate this to all on-site workers.

Key contacts

Parks Canada Key Contacts	Roles and Responsibilities	Contacts
Emergency Dispatch:		

Delivery

- 1.60. Ensure all on-site staff attend a briefing with designated Parks Canada staff before beginning work at the site to review and explain mitigations.
- 1.61. Delineate the work zone by clearly marking with stakes, flagging tape or other means to limit active construction and define access and egress locations. Remove completely when the project is completed.
- 1.62. Identify staging areas, material/equipment drop sites, and parking areas. Locate these areas within an existing disturbed footprint (e.g., roadways, gravel surface, previously disturbed areas with high resiliency) or other site as approved by designated Parks Canada staff.
- 1.63. Use existing roadways, trails, identified disturbed areas or other areas as approved by designated Parks Canada staff for site access.

Noise Management

Planning

- 1.64. Identify noise limits (e.g., location, time of year), especially near areas of high use by park visitors (e.g., campgrounds, picnic areas) or in vicinity to sensitive areas and wildlife and incorporate into plans and specifications.

Delivery

- 1.65. Maintain equipment and heavy machinery in good working order (e.g., adequate muffler, regular maintenance).
- 1.66. Use the noise attenuation devices provided with certain equipment or tools (e.g., compressor side panels).
- 1.67. Shut off motorized equipment if it is not used for an extended period of time.
- 1.68. Whenever possible, locate stationary equipment away from noise-sensitive areas or in such a way as to reduce the impact on the ambient noise level.

Fuel Storage and spills

Planning

- 1.69. A Spill Contingency and Response Plan must be submitted and approved by designated Parks Canada staff prior to starting work.

Note:

The Spill Response Plan must, at minimum, include the following information:

- List of products and materials that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement, sand blasting agents, paint, solvents and hydrocarbons;
- Required equipment on site and location of spill kits;
- Spill prevention procedures (i.e., containment and storage of materials, security, handling, use and disposal of empty containers, surplus products or waste generated in the application of these products in accordance with all applicable federal and provincial legislation);
- Fueling and fuel storage procedures;
- Spill response procedures (i.e., containment, clean-up, disposal of contaminated materials, etc.);
- Spill reporting procedures; and
- Up-to-date emergency response contact list including contact information for reporting spills.

Delivery

- 1.70. Ensure drip trays are placed under equipment when not in use.
- 1.71. Retain spill kits sufficient to contain and clean up 110% of the site's largest possible fuel or chemical spill at each location of potential spills, including all sites where equipment is working.
- 1.72. Provide a briefing about the Spill Response Plan for all crew members on site and ensure they are aware of the location and use of spill kits and containment devices.
- 1.73. If potentially hazardous materials (e.g., cement-based products, sealants or paints) are used on site, ensure raw material, mixed compounds and wash water are not released to any waterbody or soils.
- 1.74. Take timely and effective action to stop, contain and clean-up all spills if the site is safe to enter. Immediately notify the designated Parks Canada staff of any spill. In the event of a major spill, stop all other work and devote all personnel to spill containment and clean-up. Remediate the site to pre-spill conditions.
- 1.75. Dispose of contaminants at an approved facility. A detailed receipt of delivery to an approved facility may be requested by the designated Parks Canada staff.

Dust Management

Delivery

- 1.76. For dust control from all project activities, use only water that is free of waste and organic matter. Chemical dust suppressants shall not be used unless directed otherwise by designated Parks Canada staff, in accordance with Parks Canada health and safety and environmental policies.
- 1.77. Dust control materials should be applied to pre-wetted surfaces.

Site Clean Up/General Waste Management

Delivery

- 1.78. Clean tools and equipment outside of protected heritage places to prevent the release of wash water that may contain deleterious substances, unless otherwise directed by designated Parks Canada staff.
- 1.79. Remove all salvageable, non-combustible and non-hazardous materials and reuse or recycle it to the greatest extent possible.
- 1.80. Contain and remove all waste in a timely and approved manner, and dispose of it at an approved disposal facility outside the protected heritage places unless otherwise directed.
- 1.81. Empty construction waste storage containers when 90% full. Provide lids for waste containers, ensure they are wildlife proof if there are attractants, and cover waste loads during transport (including waste containers and truck loads).
- 1.82. Separate on site any hazardous material and pollutants such as fuels and solvents (e.g., asphalt shingles, creosote treated wood, asbestos, lead paint, molds, animal excrement, paints, automotive products, electrical equipment). Dispose of contaminated materials at provincially or territorially certified disposal sites.
- 1.83. If present, service portable sanitary facilities on a regular basis and dispose of accumulated waste at a sanitary waste disposal facility. Provide adequately sized portable facilities and manage them to ensure waste is not discharged to the environment.
- 1.84. Collect waste materials created during the application or removal of protective coatings (e.g., sandblasting abrasives, paint particles, rust and grease) and retain them for disposal at appropriate locations.

Site Reclamation

Planning

- 1.85. Post-construction reclamation activities must be detailed in an approved Reclamation Plan, Environmental Protection Plan or other project document prior to construction.

Note:

- Discuss reclamation early in the project scoping and design stage and include in project budget and contract specifications.
- Appropriate site-specific reclamation goals should be determined for the project, depending on the nature of the site and level of disturbance. For most road projects, a Reclamation Plan will outline revegetation methods to achieve a previous state. In certain cases, a Restoration Plan may outline methods to restore ecological integrity or realize additional conservation gains.
- Reclamation Plans should outline any plans for non-native vegetation management, topsoil management, plant materials, revegetation methods, monitoring and maintenance.
- Follow any Field Unit reclamation guidelines where they exist or set revegetation goals appropriate to the ecoregion. As an example, general reclamation goals for Banff National Park are:
 - <20% Bare soil (>80% Native vegetative cover)
 - No new IAS species present (does not include species that were present pre-disturbance)
 - No increase in IAS present prior to disturbance (similar plant cover/m²)
 - >80% survival of live plantings
 - No erosion issues.

Delivery

- 1.86. Implement Reclamation Plans for the disturbed area immediately following completion of construction. Long delays between vegetation removal and revegetation should be avoided. For some projects, revegetation in smaller phases should be considered to minimize soil exposure.

Subsoil and Topsoil Placement:

Planning

- 1.87. Assess methods of bioengineering such as terracing, willow staking, or live pole drain systems where soils are steeper or remain unstable.
- 1.88. Avoid use of fertilizer to limit non-native vegetation growth and allow for local species to use available nutrients. Any use of compost, foreign soils, fertilizers, locally sourced mycorrhizae compost and soil amendments must be approved by designated Parks Canada staff.
- 1.89. Place and grade topsoil before winter.

Delivery

- 1.90. Excavate, conserve, store and replace existing site topsoil unless otherwise directed by designated Parks Canada staff. Soil imports from other project sites or outside of the protected heritage place is not generally recommended. However, if required, it must be approved by designated Parks Canada staff.
- 1.91. Salvage site topsoil using a “two lift” method and store topsoil and subsoil separately for improved reclamation success.
- 1.92. Compact backfill or allow it to settle to prevent depressions.
- 1.93. Replace topsoil to all areas immediately following fine grading.
- 1.94. Do not compact topsoil by driving repeatedly over the site. Keep topsoil “rough and loose” or as directed by designated Parks Canada staff.
- 1.95. Where remaining soils are unstable due to steepness or soil characteristics, install erosion controls immediately or apply a hydraulic erosion control product to the target areas.

Revegetation:

Planning

- 1.96. Determine the appropriate site-specific seed mix(es) and/or plantings.

Note:

If there is no approved species list within the Field Unit, consider the following conditions when selecting plant materials:

- Revegetation with native species is preferred unless otherwise directed by Parks Canada.
 - Use species relatively common within local native plant communities.
 - Source seeds from local growers to ensure local adaptation wherever possible (within the ecoregion, ecozone, province or as per [Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas](#)).
 - Avoid the use of cultivars unless there are no wild species available. A cultivar is a cultivated plant variety that has been selectively bred for certain specific characteristics (hardiness, stature, colour, etc.), e.g. Big Bluestem ‘Niagara’ (*Andropogon gerardii* ‘Niagara’).
 - Consider species’ viability in proposed environment and climatic conditions.
 - Use species that rapidly establish to effectively control erosion, where required.
 - Consider palatability of some species to wildlife and avoid growing attractants in areas of increased risk to wildlife and visitors. Avoid palatable species for roadside reclamation. For additional information see the Parks Canada Guidance on Revegetation to Reduce Risk to Wildlife.
- 1.97. Schedule construction so that seeding or planting can coincide with seasonal planting windows (i.e., spring or fall).
 - 1.98. Salvage of native plants is preferred over purchase of commercial plugs or container stock where possible.

Delivery

- 1.99. Do not use seed that is coated (including “ultra-coating”) unless approved by the designated Parks Canada staff.
- 1.100. Ensure seed certificates are approved by the designated Parks Canada staff prior to seeding.
- 1.101. Ensure seed mix(es) and any species substitutions are approved by the designated Parks Canada staff.

- 1.102. Unless otherwise directed, seed certificates must include both the common and scientific name following the CANADENSYS nomenclature system; indicate if the seed is a cultivar, ecovar, or wild native species; geographic origin (seed source); date of collection; method of seed storage; germination, viability and vigour; and indicate all other species occurring including agronomic, weed, and native species; and date of the analysis. The contact information for the Seed Supplier shall be included.
- 1.103. Broadcast seeding is the preferred method of seeding native seeds, where terrain and soil conditions permit.
- 1.104. If using Hydraulic Erosion Control Products (HECP or hydromulch) apply over top of native seed already in place, where possible. Avoid using native seeds in tank mixes unless specified by the designated Parks Canada staff.
- 1.105. For hydroseeding and hydromulching, thoroughly clean and rinse tanks to remove any unwanted species. All tank additions (e.g., hydro-mulch, tackifier, soil amendments) must be pre-approved by the designated Parks Canada staff.
- 1.106. For hydroseeding or hydromulching, ensure that full coverage and minimum depth are attained for erosion protection, and depth is consistent across site. Trees and established existing vegetation are not to be covered with mulch.
- 1.107. Seed and stabilize bare areas as soon as possible after disturbance, preferably as soon as a significant area is graded and finished and before the next rain event, unless otherwise directed.
- 1.108. Do not perform seeding under adverse field conditions such as frozen soils, excessively wet or dry soil, ice or standing water, heavy rain, or high winds.
- 1.109. In cases where mulching is necessary to assist with seed establishment, apply it immediately after seeding.
- 1.110. Apply seed at a rate appropriate to the seed mixture, seeding method and existing vegetation conditions or as directed by the designated Parks Canada staff.
- 1.111. Do not seed on hardened (compacted), crusted or mechanically rutted surfaces.
- 1.112. Following broadcast seeding, rake soil to set seed in place and reduce foraging; this may be completed by hand or light harrow for larger areas.
- 1.113. Protect seeded area against erosion or damage as appropriate for the specific site (e.g., erosion control blanket, hydro-mulching, mulching).
- 1.114. Some seeding procedures may have to be completed or repeated in subsequent years as per the Reclamation Plan.
- 1.115. Ensure live plants (e.g., transplants, plugs, container stock) are watered-in well and receive sufficient moisture until established, and through any periods of extended drought. Provide regular watering unless there is sufficient rainfall.

Monitoring and Control:

- 1.116. Schedule site inspections to monitor reclamation progress for an appropriate timeframe following construction to ensure establishment of vegetation.
- 1.117. Vegetation and IAS establishment will be assessed and minimum standards met before Certificate of Completion is issued.

2. Asphalt Production and Handling

Operation of Asphalt Plants

Planning

- 2.1. Select low volatile organic compounds-emitting (VOC-emitting) asphalt products in paving activities or maintenance operations (e.g., emulsified asphalt) when appropriate.
- 2.2. Asphalt works should be undertaken during periods of dry weather whenever possible as this allows easier control of contaminated runoff and sediment.
- 2.3. If the work schedule requires working in the rain, install appropriate sediment and erosion controls to prevent the release of sediment-laden water or any other deleterious substances into surface waters, particularly for surface repair works requiring the application of patching and sealing compounds, tar, asphalt, and chemical surface sealants. Stop paving if deleterious substances are running off (or are obviously going to run off).
- 2.4. Asphalt plant operation shall comply with all environmental pollution control regulations, including provincial regulations, and the plant operational plan.
- 2.5. Ensure asphalt plant emissions do not exceed the limits set by provincial emission regulation.
- 2.6. Asphalt plants should be located at least 500 m from buildings with human habitation.
- 2.7. Determine acceptable operating hours of operation and, if applicable, local noise standards.
- 2.8. Determine stockpile areas or disposal/re-use plans for rejected asphalt.

Delivery

- 2.9. Provide enough room between the stockpiles and the asphalt plant for a loader in the event of a spill at the asphalt plant.
- 2.10. Install a containment berm with an associated liner made of occlusive material (e.g., plastic of a thickness approved by the designated Parks Canada staff) and covered with absorbent sand or clay under the bitumen storage tank to ensure containment of 110% of the tank's capacity. Dyking and ponding may be required to control the rate and quality of runoff from the plant site.
- 2.11. If excess or reject new asphalt product is stockpiled during significant rainfalls, contain all runoff as directed by the designated Parks Canada staff.
- 2.12. Make every effort to recycle waste asphalt, either as a base course, or by recycling waste asphalt product through the asphalt plant according to engineering specifications. Old cured ground asphalt material shall be removed and recycled, or stored for future recycling at an approved operational gravel pit or asphalt plant site.
- 2.13. Protect containment/catchment areas and drip trays at the asphalt plant from rainfall. If contaminated, dispose of all collected water at an approved disposal facility.
- 2.14. Ensure that the water in the settling ponds remains clean of petroleum products. Dispose of any contaminated water at an approved disposal facility.
- 2.15. Contain sludge removed from the clarifier to prevent fine dust particles from becoming airborne during windy periods.

Gravel Crushing and Washing

Planning

- 2.16. Where possible within engineering constraints, recycle asphalt materials to reduce the need for new gravel.

Delivery

- 2.17. If water for cleaning is extracted from a waterbody, refer to module 11: [Water Withdrawal and Dewatering](#).
- 2.18. If gravel requires washing, wash water shall not be deposited directly into any waterbody.
- 2.19. Discharge water free from chemical contaminants onto the ground where further erosion and runoff into surface water is prevented. Discharging into well-vegetated ground surface, at a rate which prevents erosion can often provide increased absorption and reduction of sediment load.

- 2.20. Contaminated water shall be treated to meet [CCME guidelines](#) or transported outside of the protected heritage place for disposal at an approved facility.
- 2.21. Ensure there are no vertical faces on gravel stockpiles, to prevent nesting by bank swallows or similar species.

Oiling of Truck Boxes

Planning

- 2.22. Ensure trucks used for hauling asphalt mixture have tight, clean, smooth metal boxes. Acceptable lubrication to prevent asphalt product from adhering include a minimum amount of thin fuel oil or, where oil is prohibited, a non-petroleum lubricant.

Delivery

- 2.23. Oil truck boxes only when absolutely necessary.
- 2.24. Oil truck boxes in a bermed area, consisting of a plastic underlay with 15 cm overlay of clean gravel. Hand-collect oil-contaminated gravel (to prevent tearing of the plastic) from the bermed area daily, and put through the asphalt plant.

Disposal and Clean Up of Other Waste Products

Planning

- 2.25. During the preconstruction meeting, establish a defined schedule to ensure regular clean-up of waste asphalt and petroleum spills.

Delivery

- 2.26. Refer to module 1: General Activities-[Site Clean Up/General Waste Management](#).
- 2.27. Collect leaks in drip-trays. Remove the collected material from the protected heritage place and dispose of at appropriate facility, or recycle it through the asphalt plant.
- 2.28. Collect used oil, filters, grease cartridges, oil cans and other waste products of plant servicing, and dispose of them at the nearest, approved industrial waste facility.

3. Concrete Handling and Washout Facilities

Delivery

- 3.1. Prevent wash water, concrete, debris and sediment used in roads, barriers, guardrails or other-related infrastructure from directly or indirectly entering water by establishing and maintaining effective separation of the concrete work from the storm drain inlets, open drainage facilities, and waterbodies.

Onsite Temporary Concrete Washout Facility

Delivery

- 3.2. Ensure the size and number of pits or bermed areas used as concrete washout facilities are sufficient to contain liquid and concrete waste, are in flat areas, and are not in sensitive environments.
- 3.3. Wood stakes and sandbag materials may be used to construct temporary containment walls or “barriers.” Products should also be selected to reduce potential for wildlife entanglement/attraction and prevent introduction of invasive alien species. Avoid straw bales unless authorized by designated Parks Canada staff.
- 3.4. Line the facility with polyethylene sheeting that is a minimum of 10 mil thick and free of holes, tears or other defects.
- 3.5. Ensure soil under the washout structure is free of rocks or other debris that may cause tears or holes in the plastic lining material.
- 3.6. Wash excess concrete from mixer trucks, chutes or bins into approved concrete washout facilities or collect in an impermeable bag for disposal. Return large quantities of excess concrete to the batch plant for disposal.
- 3.7. If concrete batching plants are located in the protected heritage place, they must be operated pursuant to applicable dust, air emission, and water quality control regulations.
- 3.8. Backfill and restore depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities.

Concrete Washout Facilities

Delivery

- 3.9. Maintain temporary concrete washout facilities with adequate holding capacity, including a final freeboard of at least 100 mm.
- 3.10. Remove concrete from washout facilities when hardened. Dispose of it outside the protected heritage place in compliance with provincial and federal regulations, or, where approved by designated Parks Canada staff, bury it in the grade or crush and mix it with aggregate.
- 3.11. Clean existing facilities, or ensure new facilities are ready for use, once the washout is 75% full.
- 3.12. Inspect temporary concrete washout facilities daily and after heavy rains to check for leaks, identify any damage to plastic linings and sidewalls (e.g., tears in PVC liner, missing sand bags) and determine whether they have been filled to over 75 percent capacity.

Concrete Application

Planning

- 3.13. Determine site specific mitigation measures for larger scale manual mixing activities (around >20 litres) including buffer zones, drip trays, and daily surveillance requirements.

Delivery

- 3.14. Perform concrete cutting operations in a way to pick up all saw cutting residue.
- 3.15. Collect wash water when cleaning areas and equipment used during concrete activities and dispose of wash water with slurry.
- 3.16. Do not dump unused wet concrete on bare ground to harden at construction sites.

Concrete Work In or Near Water

Delivery

- 3.17. During concrete delivery for works near water, where the 30 m buffer zone cannot be observed (e.g., bridge work), establish extra measures to prevent spills into the environment (e.g., collection/drip trays and berms lined with impervious material (such as plastic and a layer of sand), and double-lined fuel tanks).
- 3.18. Use anti-leaching concrete for projects that are likely in contact with a waterbody. Provide all workers with proper training on handling and application of anti-leaching concrete.
- 3.19. Maintain complete isolation of all cast-in-place concrete and grouting from fish-bearing waters until significantly cured.
- 3.20. If concrete materials are found to be entering waterbodies, monitor turbidity and pH and have a CO₂ diffusion system in place to neutralize pH levels.
- 3.21. If working below the water table without anti-leaching concrete, implement effective isolation, dewatering and other methods to keep the toxic product from entering the water.

4. Paving, Resurfacing and Grading

Grading

Delivery

- 4.1. Do not grade or allow material to spill outside of the delineated work area, within 1 m of the forest drip line, or in a stream, waterbody or wetland. Any material inadvertently falling outside the work limits will be removed promptly in a manner that does not damage vegetation or water quality.
- 4.2. Avoid grading following seed set if it is likely to spread seeds of non-native vegetation.

Paving and Resurfacing

Delivery

- 4.3. Paving should not be undertaken during steady rain to prevent entry of concrete, asphalt, or patching and sealing compounds directly or indirectly in water.
- 4.4. Minimize changes to the surface that could negatively affect infiltration and runoff characteristics and maintain effective surface drainage to limit direct runoff into surface waters.
- 4.5. Follow manufacturer guidelines and methods for proper use in the handling and application of sealants or other compounds.
- 4.6. Minimize application of seal coats or tack in wet conditions:
 - Apply seal coats only to dry surfaces and not within 2 hr of rainfall
 - Apply tack coats only if no rain is expected prior to covering the tack-coated surface with asphalt. If unforeseen rain arrives ensure runoff from recently seal coated surfaces are prevented from entering surface waters.

Pavement Marking and Barrier, Concrete Barrier and Guardrail Reinstatement

Delivery

- 4.7. If pressure treated wood is used, follow procedures in the Parks Canada Treated Wood Management Guidelines.
- 4.8. Undertake pavement marking pursuant to standard methods applied in the protected heritage place for control of paint products, both in transport and handling.
- 4.9. A plan for the transport and control of paint and hazardous products (e.g., application of paint, cleaning of equipment, containment and disposal of waste paint and cleaning products) must be approved by designated Parks Canada staff.

5. Roadside Vegetation Removal

This module covers the occasional or project-specific (i.e., non-routine) cutting or removal of vegetation within the existing footprint of the roadway. Such vegetation often includes trees and large shrubs, and is typically done to prepare for construction. This work may also include deferred vegetation management (i.e., non-routine sightline maintenance). This PRIA does not include significant vegetation removal projects (e.g., kilometres of roadside tree removal or removing trees through the use of skidders) or routine roadside vegetation management activities.

General

Planning

- 5.1. Flag clearing areas. Clearing plans shall be approved by designated Parks Canada staff.
- 5.2. Do not clear vegetation during high or extreme fire weather index without the approval of designated Parks Canada staff. Work may be delayed to prevent risk of wildfire.
- 5.3. Identify and preserve trees with obvious wildlife use (e.g., snags with cavity nests, large trees with stick nests) unless assessed as hazard trees. If felling is unavoidable, designated Parks Canada staff consultation and approval is required.
- 5.4. Consider potential wildlife impacts (e.g., impacts of clearing Milkweed on Monarchs) when planning the extent of vegetation removal along roadways.
- 5.5. Identify individual trees to be salvaged for later use. Temporarily transplant trees for use following construction.

Delivery

- 5.6. Vegetation clearing should be conducted using methods that minimize ground disturbance, promote effective reclamation and minimize the potential for the establishment and spread of non-native vegetation.
- 5.7. Clear the minimum of area necessary; trees should be removed only if necessary for project completion or visitor/staff safety. Minimize full removal and retain vegetation when possible to reduce erosion.
- 5.8. If removal of riparian vegetation is unavoidable, use manual methods and directionally fall trees as far as possible from watercourses. Designated Parks Canada staff consultation and approval is required.
- 5.9. Protect roots of trees to drip line to prevent disturbance or damage. Avoid traffic, dumping and storage of materials over the root zone.
- 5.10. When felling trees, take precautions to minimize damage to surrounding vegetation.
- 5.11. When removing individual branches, employ pruning techniques to minimize risk of tearing the bark and harming the tree; ensure that only branch tissue is removed and stem or trunk tissue is left undamaged.
- 5.12. Cut stumps flush with the ground, and leave ground cover undisturbed to promote slope stability. If clearing operations are conducted during snow cover, revisit the site after snowmelt to flush cut stumps.
- 5.13. Grub only if the removal of stumps is required to achieve project goals.
- 5.14. Ensure grubbing and stripping do not damage trees and roots beyond clearing limits.
- 5.15. On steep slopes, avoid grubbing and stripping unless otherwise directed.
- 5.16. During grubbing, shake stumps, roots, imbedded logs and other non-soil debris free of loose soil and rocks before transport.

Disposal of Vegetation Debris

Planning

- 5.17. Adhere to all federal and provincial policies with regards to the transport of wood beyond park boundaries.
- 5.18. Set aside logs for use elsewhere if directed by the designated Parks Canada staff.
- 5.19. Where fire fuel loading is not a concern, consider placing limited amounts of vegetation debris in the forest to mimic natural tree fall, using it as a natural erosion control method along stream banks or

large side slopes, or including it in site restoration. Such uses must be approved by designated Parks Canada staff.

Delivery

- 5.20. Debris shall not be disposed of in waterbodies.
- 5.21. Remove all vegetation debris as soon as possible from the work site, either by transporting off-site for disposal or as directed by the designated Parks Canada staff.
- 5.22. Convey logs and other salvage materials to storage sites without spreading debris or damaging standing trees or other features outside the marked clearing or storage limits. Do not skid material through wetlands, waterways or water bodies.
- 5.23. Any burning of debris must be approved by the designated Parks Canada staff. If approved:
 - Make burn piles where trees are felled or as directed by designated Parks Canada staff. Limit piles to 1.8 m in diameter and no more than 1.2 m high, or as directed by the designated Parks Canada staff.
 - Locate burn piles to prevent scorching of surrounding live trees. Adopt measures to ensure that fires do not spread (e.g., burn on snow or on mineral soil).
- 5.24. Mulch or chip vegetation only where the quantity of mulch will not cover underlying vegetation, prevent new native seedlings from sprouting, or cause soil or seed bank sterilization. Approval from designated Parks Canada staff for mulching/chipping will be determined based on reclamation objectives, non-native vegetation, and fire hazard mitigations.
- 5.25. If mulching is used to clear vegetation, rough mulching is the preferred option.

6. Excavations, Soil Stripping and Overburden Removal

Excavation

Planning

- 6.1. Trenches to be dug for service lines should follow an existing utility corridor where possible.

Delivery

- 6.2. Minimize changes to the ground surface that negatively affect infiltration and runoff characteristics and maintain or re-establish effective surface drainage on completion of the project.
- 6.3. Do not spill materials outside the work limits. If any material inadvertently falls outside the work limits, remove it promptly in a manner that does not damage trees or vegetation.
- 6.4. Backfill and compact excavations as soon as possible.
- 6.5. In the event of a work program shutdown during inclement weather (e.g., winter conditions unfavourable for construction, heavy rain events) establish sediment and erosion control and a contingency planning for bared soils or excavated material stockpiles.

Soil Salvage

Planning

- 6.6. Plan the topsoil and subsoil salvage to minimize handling and traffic on soils.

Delivery

- 6.7. Salvage topsoil and subsoil at all excavation sites in separate layers or lifts for reclamation purposes. Topsoil shall not be removed from the site unless otherwise directed.
- 6.8. Store topsoil separately from subsoil. Never pile subsoil on top of topsoil.
- 6.9. Stumps and woody debris should be removed from topsoil, but retained for restoration where applicable and at the direction of the designated Parks Canada staff.
- 6.10. Stabilize and repair all eroded areas prior to surface preparation, as determined by the designated Parks Canada staff, using local material where possible.
- 6.11. For multi-lift procedures, place the final layer of organic material containing the seed bank last.
- 6.12. Unless otherwise directed, apply topsoil at a depth of 30-50 mm, or at the depth of the original site conditions (when sites were lacking of topsoil prior to construction, returning to that condition can be approved by the by the designated Parks Canada staff). Topsoil depths can be increased on gentler slopes and the surface should remain rough.
- 6.13. Do not allow equipment to compact topsoil after replacement, which should be timed to coincide with seeding or other revegetation work.

Storage of Excavated Materials

Planning

- 6.14. Identify soil storage locations when developing construction plans. During the winter (when ground is frozen) soil storage can occur on undisturbed areas. When soil is thawed, soil storage should be located on previously disturbed areas (e.g., pull outs, roads, trails, campsite, and staging area) so that no soil compaction occurs outside of the construction area, unless otherwise directed.
- 6.15. Plan to separate stored topsoil from spoil by at least 1 m. Use appropriate material (e.g., geo-textile) to separate soil components where space is limited.

Delivery

- 6.16. Store stockpiled material on flat ground, away from drainage areas, waterbodies, subsoil, spoil material, construction activity and day-to-day operations unless otherwise directed; follow Erosion and Sediment Control Plan or Environmental Protection Plan.
- 6.17. Limit soil stockpile height to 2 m unless approved by designated Parks Canada staff.
- 6.18. Avoid topsoil loss. For example:
 - Do not store soil in areas prone to high winds.

- Surround soil with berms or construct barricades in areas with steeper slopes.
- Cover and anchor stockpile with dark geotextile when storage will exceed a week.
- Plant approved native seed over topsoil stockpiles instead of using covers if approved by the designated Parks Canada staff.

6.19. If surplus topsoil is available after site reclamation:

- it may be used to fill depressions around the project site with approval from designated Parks Canada staff; or,
- make arrangements for disposal or stockpiling for other projects in consultation with the designated Parks Canada staff.

7. Slope Stabilization, Drilling and Blasting

Slope Stabilization-Scaling

Delivery

- 7.1. If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, ensure that appropriately- sized, clean rock is used, and rock is installed at a similar slope to maintain a uniform bank.
- 7.2. Direct concentrated surface water (runoff) away from cut and fill slopes.

Drilling and Blasting for Slope Stabilization

Planning

- 7.3. The designated Parks Canada staff will identify a magazine location for explosives should a factory site or "ready-to-use" explosive storage site be required.
- 7.4. The blasting supervisor shall plan the work to ensure no damage to infrastructure, people, surrounding vegetation or wildlife by mitigating risk of fly rock.
- 7.5. Refer to the National Geotechnical and Environmental Investigations PRIA for drilling boreholes and excavation of test pits.

Delivery

- 7.6. When possible, contain cuttings from all drilling so they can be removed entirely from the site. If the cuttings are contaminated dispose of them at an approved waste disposal facility.

8. Demolition

Planning

- 8.1. Before undertaking the partial or complete demolition of existing infrastructure, prepare a demolition plan or a written procedure for partial demolition. This is subject to approval and direction from the designated Parks Canada staff.
- 8.2. If water lines and wells are of no further use, remove, cap or decommission them according to the appropriate federal or provincial legislation. Consult with designated Parks Canada staff to determine whether full excavation and removal of all subsurface infrastructure (e.g., pipes, cement structures, wires) is required. Backfill any excavation with clean and authorized topsoil.
- 8.3. Prior to commencement of demolition activities, identify water and septic systems, lines and/or fields and take precautions during the operation of heavy equipment to avoid damaging them.

Delivery

- 8.4. If undocumented contamination is found, cease work immediately and contact designated Parks Canada staff.

9. Drainage Structures

Drainage Structures

Planning

- 9.1. Plan design of new drainage structures ahead and incorporate into the project scope. Proposed drainage structures should be designed or upgraded to facilitate habitat connectivity for fish, amphibians, reptiles and other wildlife. Consideration should also be given to incorporating wildlife crossing features into drainage structures as appropriate (e.g., ledges or pathways) or to designing culverts to reduce the ability of beavers to dam them.
- 9.2. Consider installing the new culvert offset from the old one to allow the waterbody to continue flowing in its original path during construction, then shunt the stream to the new culvert upon completion.

Delivery

- 9.3. Ensure compliance with [current DFO standards and codes of practice](#) (e.g., [Interim code of practice: Culvert maintenance](#) or [Interim code of practice: Temporary cofferdams and diversion channels](#)). Code of practice may be included in appendix.
- 9.4. When removal of debris is required within culverts and around bridge piers and abutments, implement the following:
 - Remove materials by hand when feasible.
 - Limit removal of accumulated material (e.g., branches, stumps, woody materials, garbage) to the area within the culvert, immediately upstream of the culvert and to that which is necessary to retain culvert function and water flow.
- 9.5. Adequately protect the culvert, inlet(s) and outlets(s) with rip rap to prevent erosion and scour around the culvert during high runoff events.
- 9.6. Maintain natural streambed material through fish-bearing drainage structures to allow continuous substrate that matches the streambed below and above the crossing, unless otherwise directed.

10. Bridge

Bridge Repairs

Delivery

- 10.1. Use of untreated wood products is recommended when feasible. If there is no alternative to using treated wood, ensure it has been treated with a wood preservative appropriate for the project. Follow procedures in the Parks Canada Treated Wood Management Guidelines.
- 10.2. Avoid use of toxic paints, primers, solvents, degreasers and rust inhibitors.
- 10.3. Prevent entry of deleterious substance (e.g., concrete, asphalt, paint, solvents, sandblast material, patching and sealing compounds) directly or indirectly in water. For example:
 - Establish and maintain effective separation of the work from the waterbody.
 - Attach drop cloths or tarps (supported by webbing or netting if necessary) to prevent materials from entering the water, and inspect regularly for signs of failure.
 - Stop work if deleterious substances are running off (or are obviously going to run off).
 - If treated timber must be cut to size, ensure cutting takes place away from the bridge and waterbody. Sawdust must be prevented from entering any waterbody and removed from the protected heritage place or otherwise disposed of as directed by the designated Parks Canada staff.

Bridge Cleaning

Planning

- 10.4. Schedule bridge-cleaning activities (not in-water work) to coincide with spring freshet when possible. At freshet (high water flow during spring thaw) or during periods of high flow a large waterbody will often have its highest background levels of sediment.
- 10.5. If works are planned outside the freshet or if your region does not experience a freshet, discuss the protocol and timing of these works with the designated Parks Canada staff in consultation with the aquatic specialist/parks ecologist and add as a supplemental mitigation.

Delivery

- 10.6. Use only water for cleaning. If your cleaning activities require degreasers or any other chemical, approval is required by the designated Parks Canada staff.
- 10.7. Comply with allowable levels of silica when using abrasives, as specified in national/provincial regulations. To the extent possible, use an abrasive with a less significant impact than silica.
- 10.8. Adequately seal drains and any open joints on the bridge deck before sweeping or washing.
- 10.9. Inspect tarps, drain blocks, and wash water runoff areas regularly to ensure they are functioning. Repair as required.
- 10.10. Use hydro blasting or manual techniques, where possible, when removing road dirt, soluble salts and loose paint.
- 10.11. Dry sweep and collect loose material off bridge surfaces before washing the bridge.
- 10.12. If dry sweeping and preventing direct runoff to waterways is not a feasible way to clean the surface, alternate procedures shall be determined in consultation with the designated Parks Canada staff.
- 10.13. Contain any wash water or runoff to the bridge deck. Direct wash water towards the bridge approaches and away from the waterbody, then to a vegetated area or contained settling areas (e.g., dry ditch channels unconnected to a waterbody) where it can infiltrate.
- 10.14. If superstructure cleaning is undertaken above or on the bridge deck level, prevent potentially harmful materials from entering into road drains. Block deck drains with suitable barriers (e.g., polyethylene or drain blocks) to prevent direct discharge to a waterbody, or re-route runoff through temporary piping onto adjacent settling ponds or structure. Using a hydro vacuum would be another option.

11. Water Withdrawal and Dewatering

Water Withdrawal

Delivery

- 11.1. Select waterbodies that can sustain withdrawal without compromising sensitive species.
- 11.2. Follow the 10/90 rule for water withdrawal. This allows for up to 10% of the stream flow to be withdrawn, as long as the stream flow does not fall below the 90% exceedance flow.
- 11.3. If water withdrawal is approaching 10% of the stream flow, limit total take of water to less than 5 successive days and less than 10 days in any period of 30 days.
- 11.4. Ensure any flows are temporarily diverted around the portion of the ditch or waterbodies where work is being undertaken.
- 11.5. Ensure compliance with [current DFO codes of practice](#) (e.g., [Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater](#)).

Dewatering and Rewatering

Planning

- 11.6. Develop a site-specific dewatering plan before commencing a pump-out sump to dewater excavation sites, with specific details on how and where the water will be discharged and how turbidity will be managed.
- 11.7. Site-specific mitigations may be required depending on the conditions of the discharge area (including erodibility of soils), freezing conditions operations, overflow avoidance, decanting and settlement pond reclamation.

Delivery

- 11.8. Ensure compliance with [current DFO codes of practice](#) (e.g., [Interim code of practice: Temporary cofferdams and diversion channels](#) or [Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater](#)).
- 11.9. Capture and relocate any fish trapped within an isolated/enclosed work area and safely relocate them to an appropriate location in the same water body. [See module 12: Fish, Amphibian and Reptile Salvage](#).
- 11.10. Dewater gradually to reduce the potential for stranding fish.
- 11.11. Monitor discharge water quality on a regular basis. Should there be any observable turbidity at the discharge point, work should halt until the source is determined and additional mitigation measures are applied.
- 11.12. Establish soil and vegetation erosion protection when water is pumped onto land.
- 11.13. Remove any excess sediment sources and cap with clean rock or gravel as appropriate.
- 11.14. Remove sediment control measures and exclusion fencing in a way that prevents the escape or re-suspension of sediments.

12. Fish, Amphibian and Reptile Salvage

Planning

- 12.1. A qualified environmental professional is required to do the salvage. The salvage protocol must be submitted and approved by Parks Canada.
- 12.2. Consider time of year for salvaging activities such as cold weather and ice which can make it very hard on animals, salvagers, labourers and equipment.

Delivery

- 12.3. Capture and relocate any animal trapped within an isolated/enclosed work area and safely relocate them to an appropriate location in the same water body/environment. Refer to [Invasive Alien Species Management](#) should any invasive species be found.
- 12.4. Relocate any fish as per applicable permits for capturing and relocating fish.
- 12.5. During amphibian salvage, try to move the object they are on.
- 12.6. Complete salvage before work starts and, if appropriate, repeat if flooding occurs or if isolation is lost.
- 12.7. If temporary exclusion fencing is installed to prevent salvaged individuals from returning to the work area during construction, remove it upon completion of the project.

Approval

Original signed by Julie Tompa on May 6, 2021

Julie Tompa
Director, Natural Resource Management Branch

Original signed by Kerry Buckley on May 6, 2021

Kerry Buckley
Acting Executive Director, Asset Management and Project Delivery Branch

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Appendix 1: Site-specific information

Example of Environmental Timing Windows Table

(to be deleted or adapted)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fish	AVOID INSTREAM WORK					Least risk window for work in and around freshwater, June 15 – Sept 15				AVOID INSTREAM WORK		
Birds	Reduced risk for harm to birds			AVOID VEGETATION REMOVAL Bird Nesting Period: April - Mid August				Reduced risk for harm to birds				
Bats	Bat in Hibernacula			Bats Nursing Pups							Bat in Hibernacula	
Turtles	Hibernation		Road Mortality	Nesting -avoid disturbance		Road Mortality		Hatchlings – avoid disturbing	Road Mortality	Hibernation		
Snakes	Avoid disturbance of Hibernacula			Road Mortality		Peak : breeding, live young Mitigate road mortality			Migration Road mortality	Avoid disturbance of Hibernacula		
Others:												

Appendix 2: Regulatory Guidance

Jurisdictions

While all projects on lands managed by Parks Canada must adhere to federal law and regulation, it is considered best practice to refer to local community, regional, provincial regulation and best practices where federal guidance is silent and/or attempt to meet those targets if it can reduce the overall impact of the project.

Some of the project activities reviewed have potential environmental impacts that are addressed by various provincial, federal and territorial acts and regulations. All activities must meet current environmental law and regulations in their design and construction. The following is a brief description of some of the key federal acts and regulations. Further review, understanding and application of other federal, provincial and territorial environmental laws are part of a rigorous approach to project planning and execution.

Canada National Parks Act - Parks Canada

All work inside National Parks and protected areas must be performed in accordance with the laws and regulations set out in the *Canada National Parks Act* and Regulations. This includes the requirement for most activities described to only be done under a permit such as: business licence for contractors, disturbance of natural objects, travel in restricted areas, special events or use of disposal sites.

Fisheries Act - Fisheries and Oceans Canada

If a project is to be conducted near water, it must avoid causing serious harm to fish in compliance with the *Fisheries Act*. Advice is available in on the Fisheries and Oceans Canada (DFO) website.

The complete list of DFO [measures to protect fish and fish habitat](#) must be reviewed and those that are applicable to the work, undertaking or activity shall be implemented. If measures to protect fish and fish habitat can be followed, a request for project review is **not** required.

Depending on the level of detail required for a review and DFO response, the Parks Canada IA Practitioner may need to consider another IA pathway.

Migratory Birds Convention Act – Environment and Climate Change Canada

The purpose of this Act is to protect and conserve migratory birds - as populations and as individual birds - and their nests. Section 6 prohibits the disturbance, destruction, or taking of a nest, egg, or nest shelter of a migratory bird.

In Canada, the general nesting period may start as early as mid-March and may extend until the end of August. This is a general nesting period that covers most federally protected migratory bird species. This period varies regionally across Canada mainly due to differences in species assemblages, climate, elevation and habitat type. Generally, the nesting period is delayed in more northerly latitudes, corresponding to vegetation development and food availability. (Environment Canada, 2014). To help with determining regionally relevant periods where nesting is likely to occur, Environment and Climate Change Canada has published estimated regional nesting periods within large geographical areas across Canada referred as "nesting zones". These periods are estimated for each zone and consider the time of first egg-laying until the young have naturally left the vicinity of the nest.

For more information, including refining the regional nesting period, refer to the [draft Parks Canada Guidance on Reducing Risk to Migratory Birds](#) and [draft Conservation Measures for Minimizing Impacts to Migratory Birds During the Nesting Period](#).

Species at Risk Act - Parks Canada, Environment and Climate Change Canada

If a species listed under the *Species at Risk Act* (SARA) is found within the project area, any potential adverse effects from the proposed project to the individuals of the species, their residences and/or their critical habitat

must be understood. Species at risk considerations require specific expertise, due to additional legal requirements under the SARA and IAA 2019 or successor legislation. If the projects or activities to be addressed by the PRIA could affect a listed species or its critical habitat, the IA Practitioner may need to consider another IA pathway.